

Abstract of the Disclosure

A lower electrode layer and a lower metallic layer are formed on a substrate, and a TMR multi-layer film is formed thereon. TMR multi-layer film is made up of a lower ferromagnetic layer, a tunnel barrier layer, an 5 upper ferromagnetic layer, a pinning layer and a capping layer. In a region where a terminal is provided, a dummy lower electrode layer and a dummy lower metallic layer are formed on the substrate, and a dummy film is formed thereon. The dummy film has the same film composition as that of the TMR multi-layer film. For defining a shape of a tunnel joint, the capping layer 10 through a halfway point in the lower ferromagnetic layer are selectively etched. In this etching process, the dummy film is also etched at the same time. In the etching process, a measurement for identifying elements scattered from the TMR multi-layer film and the dummy film is performed so as to control a position at which the etching is to be stopped.